

SEATTLE PARKS DEPARTMENT  
MAGNUSON PARK/SAND POINT  
BUILDING 2  
JURISDICTIONALLY REQUIRED  
UPGRADE ANALYSIS



February 29, 2008

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**General Description:**

Built in three phases starting in 1929, Building 2 was constructed as a Navy repair and maintenance hangar with offices/shops at the north, middle and south end of the building. The office sections of the building, located at the north and center, are two story structures. The south shop wing has both two story and full height single story sections. The office/shop sections are steel frames, concrete decks and brick veneer. The hangar bays are steel frames. All sections appear to have wood deck roof systems.

For ease of understanding the complexities of the building, we have broken up Building 2 into its primary use classifications:

South Wing is one story with a mezzanine spanning roughly one-half of the first floor area.

South Hangar is the large hangar that spans the full width of the building.

North Wing is a two story wing comprised mostly of offices and office support areas.

North Hangar is the smaller hangar located in the north wing and surrounded on three sides by office spaces.

**Year(s) Constructed:**

The northern portion of Building 2 was constructed from approximately 1929-1931. The southern portion was added around 1940-1941. Other interior additions and remodeling jobs were also apparent from the drawing record.

**Building Area:**

1<sup>st</sup> Floor: 100,055 sf

2<sup>nd</sup> Floor: 47,911 sf

3<sup>rd</sup> Floor: n/a

Total: 147,966 sf

**Construction Type:**

The building system is structural steel with wood roof decking. In the hangars, there are steel columns and bracing. Steel trusses support steel and wood framing with wood decking. The South Hangar has conventional footings, while the North Hangar is pile supported.

The ancillary areas include steel framing at the exterior walls. While most of the mezzanines are wood and steel framed, there are concrete framed mezzanines in some areas.

The elevated floors are steel framed with wood deck and concrete slabs. The first floor is concrete slab-on-grade throughout the building. The south hangar lintel is faced with steel.



### **Occupancy:**

Building 2 originally served as maintenance and repair facility for military aircraft. The building's architecture and form reflects this use: large span hangars, and ancillary space adjacent to the hangars for maintenance and administration work. The building's previous owner, the Navy, appears to have reduced maintenance late in the life of their operations; due to other pressing economic issues, the City has been unable to supply adequate funding to correct the subsequent deficiencies. The result: considerable deferred maintenance and renovation work must be performed.

South Wing: The majority of the South Wing is currently unoccupied. We noted that one first floor room is currently used as a weight lifting facility. Several of the first floor rooms are currently serving as equipment storage for the tenant using the South Hanger. The South Wing is not currently heated.

South Hanger: The south hanger is currently being used as an indoor sports field. The South Hanger is not currently heated.

North Wing: The north section of the North Wing (first floor and mezzanine) is currently occupied by the Conservation Corp. The middle and south sections of the North Wing are not occupied and appear to have been vacant for some time. Several of the first floor rooms are currently used for equipment storage by the tenants using the North Hanger.

Most of the rooms occupied by the Conservation Corp are heated. We assume there is a boiler and functioning ventilating equipment; we did not locate this equipment in our walk-throughs of the facility. The only functioning toilet rooms in the entire facility are located on second floor of the North Wing.

North Hanger: The North hanger is currently being used as an indoor sports field. The North Hanger is not currently heated.

### **Jurisdictional Compliance**

As noted, the Sand Point buildings were originally constructed and occupied by the Navy. Since military construction was not governed by the same conditions and codes as civilian structures, the Sand Point buildings were not constructed to local buildings codes and certainly do not conform to current City of Seattle building codes. Because these buildings were owned by the Navy, there is no official occupancy established for these buildings.

The City of Seattle very much wants to have official occupancies established for the Sand Point buildings. The City cannot jurisdictionally mandate the necessary upgrades to establish official building occupancies for buildings that have been continuously occupied (have not been vacated for over 24 months) and where there is no change in use.

As noted, a majority of both the north and south wings of the building are not currently occupied, and judging from the observed conditions of these spaces, have not been occupied since the Navy vacated the facility. In addition, it is our understanding that Seattle Parks is asking for a "change-in-use" for both the South and North Hangers. Due to these conditions, the City may require the alternations necessary to establish a legal

occupancy for the building. Occupancy of Building 2 will require the building undergo “Substantial Alterations” as defined by the Seattle Building Code.

Substantial Alterations for Building 2 will entail:

- Fire suppression sprinklers
- Registered and tested fire alarm system
- ADA accessibility
- Exterior wall and roof insulation
- Seismic upgrades

Fire Suppression Sprinklers: There are no fire suppression sprinklers currently installed in Building 2. Fire suppression sprinklers are required for the hanger areas. Fire suppression sprinklers are not required for the office areas; however, if fire sprinklers are excluded from the office areas, the office areas must be separated from the hanger areas by fire resistive area separation walls. Additionally there are fewer fire-resistive construction restrictions on interior corridors where such corridors occur in fully sprinklered buildings. Our recommendation is to install fire suppression sprinklers throughout the building.

There are generally two types of fire suppression sprinkler systems – wet and dry. Wet systems are used for buildings that are heated or semi-heated. Dry systems are used in buildings that are unheated. For the purposes of this study, we are assuming the office areas would be heated and the hanger areas unheated. Wet-type fire suppression sprinklers are noted for the office areas; dry-type fire suppression sprinklers are noted for the hanger areas. We are proposing a wet-type fire suppression system in the office areas and dry-type sprinklers in the hangar areas.

Fire Alarm: There is no functioning fire alarm system currently installed in Building 2. An addressable type fire alarm is required for the entire building. Due to the size of the hanger areas, the Seattle Fire Department will require a ‘voice over” fire alarm system in the North and South Hangars.

ADA accessibility: The City of Seattle requires at least 20% of the construction budget be allocated to ADA improvements for the facility. ADA improvements typically include toilet room accessibility, vertical transportation systems (elevators), signage, and building access. There is a functioning elevator in Building 2, but it is doubtful if the control panel operations have been upgraded to meet ADA requirements. None of the restroom facilities in the facility are ADA compliant. Currently, there is no elevator serving the South Wing mezzanine.

Energy Code Compliance: Substantial Alterations will trigger compliance with the City of Seattle Energy Code. The energy code requires prescriptive thermal values for the entire exterior envelope components: doors, windows, walls, and doors. In addition, the City will require lighting controls and high efficiency motors on mechanical equipment.



The City does allow trading of thermal value compliance between exterior components. For instance, if the window assemblies do not meet the prescribed thermal values, the roof and/or exterior walls can be “over-insulated” to make up for the thermal deficiencies of the windows.

Building 2 has a number of steel sash windows. These windows are single-pane and are woefully deficient in thermal performance; however, the window assemblies are noted as having historic significance. Exterior windows are exempt from energy code compliance for “semi-heated” buildings. Only 8 BTUs/hour of heating is allowed in semi-heated buildings; while this would not be enough to assure human comfort, it would suffice to protect equipment and allow for the wet sprinkler system. The Seattle Energy code will require the full thermal performance of the exterior walls and the roof for semi-heated buildings.

Due to the abundance of non-conforming exterior windows on Building 2, we suggest that the office areas be maintained as semi-heated areas and the hangers as unheated areas. Note that the separation between the semi-heated and unheated spaces is the same as for an exterior wall.

Seismic: See the attached report

**Repair items:**

**Roof:** The north roof and North Hanger are roofed with original built-up roofing. The roof system is deteriorated with multiple blisters. Roof drainage is inadequate. The South Wing and South Hanger have been re-roofed with a single-ply EPDM. The EPDM is in relatively good shape. Previous reports have indicated up to 25% of the roof decking is deteriorated and needs to be replaced. There does not appear to be any roof insulation. Additional plywood is recommended by structural engineer for increased shear capacity.

Recommendation: complete roof replacement.

**Exterior glazing:** The exterior glazing is single-pane steel sash windows. The glazing systems are noted to have historical significance. Previous reports suggested that repair of similar systems (University of Washington project) became cost prohibitive. Additional study is required. We think it would also be cost prohibitive to replace the glazing systems and maintain the same glazing profile (especially for the clerestory windows). The cost estimate assumes repairs and not replacement of the glazing systems.

**Regulated materials:** Assumptions have been made in the cost estimate for the removal and disposal of regulated materials (asbestos and lead-paint). Complete regulated materials report would be required prior to any renovation design.

**Cost Estimate:**

We were asked to estimate the costs to jurisdictionally upgrade and repair the entire facility – Scheme A. We were also asked to estimate the costs to jurisdictionally upgrade the South Wing and South Hanger and demolish the North Wing and North Hanger – Scheme B.

Scheme A Estimated Construction Cost:	\$15,015,559
Scheme A Estimated Cost per Square Foot:	\$101
Scheme A Estimated Project Cost:	\$23,109,047
Scheme B Estimated Construction Cost:	\$8,573,481
Scheme B Estimated Cost per Square Foot:	\$58
Scheme B Estimated Project Cost:	\$13,194,644

March 1, 2008

## **Sandpoint Building 2**

### **Brief Structural Condition Survey and Upgrade Recommendations**

#### **Introduction**

This large, surplused former Navy hangar, the older parts of which are over seventy five years old, is currently being used as-is primarily for activities requiring large areas of covered open space. Future redevelopment and reuse of the building will require upgrades to building systems, including the structural system. This brief structural report is meant to identify potential required upgrades to the structural system.

Our analysis is based on a walkthrough of the building, a limited, partial set of original building plans, and our knowledge of Sandpoint Building 30, a somewhat similar building for which we have provided seismic upgrade design, part of which has been constructed. We have not performed any analysis or calculations for this limited study.

#### **Building Description**

The primary original function of this facility was the maintenance and repair of military aircraft. The building forms resulting from this use include large span hangars, and ancillary space adjacent to the hangars for maintenance and administration work. The first, northern portion of the facility was constructed approximately 1930-1931, with the second major portion to the south constructed in approximately 1940-1941. Other interior additions and remodeling were also apparent in the drawing record.

Primary structural systems include long-span steel trusses, with wood and steel beams and purlins, steel wind x-bracing in both the horizontal and vertical plane, and unreinforced masonry walls infilling steel frame construction at some locations.

Consideration was given to bracing the building for lateral forces, in the form of wind bracing. Design for wind bracing in buildings of this age and type is usually not adequate to meet seismic design criteria for existing buildings.

The foundation of the earlier, northern portion was apparently driven concrete piles, while the newer southern portion is on spread footings. In some cases, mezzanines on shallow spread footings were constructed directly adjacent to pile supported foundations. When shallow spread footings were used, they were founded 4 to 6 feet below grade, which is perhaps an indication that the near-surface soils are not competent bearing material.



From our knowledge of this building type (especially Sandpoint 30), our review of the drawings and our walkthrough, we have determined the following as probable deficiencies in the seismic force resisting system that will need to be addressed as the building is upgraded:

Structural Element	Deficiency	Possible Remedy
1. Roof diaphragm	Inadequate in-plane shear capacity of the existing horizontal steel x-bracing.	Add plywood roof sheathing to the existing roof deck.
2. E-W Vertical Bracing at side walls of hangar space in both the north and south hangars	Bracing is inadequate for seismic loads, or has been altered.	Add new braced bays, along sidewalls in both hangars.
3. N-S Vertical Bracing at Hangar Doors	No bracing exists in most cases. Some lateral resistance in door pocket structure, and in portal frame action of hangar truss and columns.	Add new bracing at hangar doors, which would then be partially obstructed. Bracing would be compatible with existing appearance, and may be acceptable to Historic Preservationists.
4. Internal N-S Bracing	Additional Bracing in the N-S direction will be required.	Add internal shear walls or steel braces between hangar spaces to add additional lateral support.
5. E-W Shear walls at North and South side	Inadequate in-plane shear capacity.	Infill some windows with concrete, or add steel bracing.
6. Internal Mezzanines	Some mezzanines were constructed after main facility, and are supported independently.	Additional bracing may be required for these mezzanines, in the form of shear walls or steel bracing.
7. Unreinforced brick or hollow clay tile walls.	These wall types are vulnerable to localized collapse in an earthquake, injuring occupants and blocking exits	Strengthen walls with one of several available methods, or remove walls entirely.

## **Discussion of Deficient Structural Elements**

### **1. Roof Diaphragm**

While horizontal steel bracing exists at some locations in this building, it is usually not adequate to resist modern day seismic loads. Addition of plywood on the roof deck is a relatively low-cost solution for this problem, and can be combined with a reroofing project.



## 2. E-W Vertical Bracing at Side Walls of Hangar Space



Vertical bracing at hangar side walls is inadequate. In some cases, it has been deleteriously modified for functional reasons. (See photo.) New bracing members between columns need to be added in several column bays on each side of each hangar. New bracing have strength and detailing to comply with modern seismic regulations.

## 3. N-S Vertical Bracing at Hangar Doors

### 4. Internal N-S Bracing



Additional vertical bracing will be needed in the north-south direction. New bracing may be required adjacent to the hangar doors, partially obstructing the doors. This bracing could be compatible with the historic features of the building. (See adjacent photo.) The hangar doors are most likely not needed for any anticipated future building functions.

Internal north-south bracing will also be needed. To avoid obstructing open space in the hangars, braces or shear walls could be added in the side office/shop areas adjacent to the hangar space. These new elements would

partially obstruct space in these areas.

## 5. E-W Shear walls at North and South Side



New shear walls or braced frames will also be needed at the north and south sides. Infilling windows with concrete walls or braced frames is the likely solution.



## 6. Internal Mezzanines

Mezzanines have been added. Lateral support for these is uncertain. Some bracing, in the form of shear walls or braced frames, will be required. This may obstruct floor areas below the mezzanines.

## 7. Unreinforced Brick or Hollow Clay Tile Walls.



These walls, subject to collapse in a significant seismic event, are located throughout the facility. Common remediation solutions include strengthening with steel framing or fiberglass reinforcement, or removal.

## Discussion of Partial Building Demolition and Renovation

One possible scheme under consideration is the partial demolition of some of the facility, while leaving the rest in place. This is feasible for this type of building. The wall remaining in place after demolition would need to be strengthened for out-of-plane loads, and would become a shear wall or braced frame line.

29-Feb-08

SAND POINT BUILDING 2  
Life Safety and Building Occupancy Upgrades  
Construction Cost Estimate Summary

DESCRIPTION	SUBTOTALS
<b>SOUTH WING CONSTRUCTION</b>	
General Contractor Direct Costs	\$1,846,112
General Conditions and Mobilization (25%)	\$461,528
Subtotal	\$2,307,640
Contingency at 15%	\$346,146
<b>SUBTOTAL DIRECT COST</b>	<b>\$2,653,786</b>
<b>SOUTH HANGER CONSTRUCTION</b>	
General Contractor Direct Costs	\$2,617,181
General Conditions and Mobilization (25%)	\$654,295
Subtotal	\$3,271,477
Contingency at 15%	\$490,721
Subtotal	\$3,762,198
Escalation at 6%	\$225,732
<b>SUBTOTAL DIRECT COST</b>	<b>\$3,987,930</b>
<b>NORTH HANGER CONSTRUCTION</b>	
General Contractor Direct Costs	\$1,675,132
General Conditions and Mobilization (25%)	\$418,783
Subtotal	\$2,093,915
Contingency at 15%	\$314,087
<b>SUBTOTAL DIRECT COST</b>	<b>\$2,408,002</b>
<b>NORTH WING CONSTRUCTION</b>	
General Contractor Direct Costs	\$3,915,236
General Conditions and Mobilization (25%)	\$978,809
Subtotal	\$4,894,045
Contingency at 15%	\$734,107
Subtotal	\$5,628,152
Escalation at 6%	\$337,689
<b>SUBTOTAL DIRECT COST</b>	<b>\$5,965,841</b>
<b>TOTAL BUILDING DIRECT CONSTRUCTION COSTS</b>	<b>\$15,015,559</b>
Estimated cost per square foot	\$101
Estimating Contingency	15%
Sales Tax	8.90%
Soft Costs (design, permitting, admin)	30%
<b>TOTAL ESTIMATED PROJECT COSTS</b>	<b>\$23,109,047</b>



<b>JURISDICTIONAL SUMMARY BREAKDOWN</b>	
<b>TOTAL REPAIR COSTS</b>	
General Conditions and Mobilization (25%)	\$2,222,615
Subtotal	\$555,654
Contingency at 15%	\$2,778,268
Subtotal	\$416,740
Escalation at 6%	\$3,195,009
<b>TOTAL ESTIMATED COST</b>	<b>\$3,386,709</b>
<b>TOTAL TENANT IMPROVEMENT COSTS</b>	
General Conditions and Mobilization (25%)	\$772,138
Subtotal	\$193,034
Contingency at 15%	\$965,172
Subtotal	\$144,776
Escalation at 6%	\$1,109,948
<b>TOTAL ESTIMATED COST</b>	<b>\$1,176,545</b>
<b>TOTAL REGULATED MATERIALS COSTS</b>	
General Conditions and Mobilization (25%)	\$459,242
Subtotal	\$114,810
Contingency at 15%	\$574,052
Subtotal	\$86,108
Escalation at 6%	\$660,160
<b>TOTAL ESTIMATED COST</b>	<b>\$699,770</b>
<b>TOTAL ADA UPGRADES COSTS</b>	
General Conditions and Mobilization (25%)	\$391,200
Subtotal	\$97,800
Contingency at 15%	\$489,000
Subtotal	\$73,350
Escalation at 6%	\$562,350
<b>TOTAL ESTIMATED COST</b>	<b>\$596,091</b>
<b>TOTAL EGRESS IMPROVEMENTS COSTS</b>	
General Conditions and Mobilization (25%)	\$122,000
Subtotal	\$30,500
Contingency at 15%	\$152,500
Subtotal	\$22,875
Escalation at 6%	\$175,375
<b>TOTAL ESTIMATED COST</b>	<b>\$185,898</b>
<b>TOTAL ENERGY CODE COMPLIANCE COSTS</b>	
General Conditions and Mobilization (25%)	\$1,632,946
Subtotal	\$408,237
Contingency at 15%	\$2,041,183
Subtotal	\$306,177
Escalation at 6%	\$2,347,360
<b>TOTAL ESTIMATED COST</b>	<b>\$2,488,201</b>

TOTAL SEISMIC CODE COMPLIANCE COSTS		\$2,437,722
General Conditions and Mobilization (25%)		\$609,431
Subtotal		\$3,047,153
Contingency at 15%		\$457,073
Subtotal		\$3,504,225
Escalation at 6%		\$210,254
TOTAL ESTIMATED COST		\$3,714,479
TOTAL LIFE/SAFETY CODE COMPLIANCE COSTS		\$1,507,581
General Conditions and Mobilization (25%)		\$376,895
Subtotal		\$1,884,476
Contingency at 15%		\$282,671
Subtotal		\$2,167,147
Escalation at 6%		\$130,029
TOTAL ESTIMATED COST		\$2,297,176

29-Feb-08

SAND POINT BUILDING 2  
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General Conditions and Mobilization (25%)	\$654,295
Subtotal	\$3,271,477
Contingency at 15%	\$490,721
Subtotal	\$3,762,198
Escalation at 6%	\$225,732
<b>SUBTOTAL DIRECT COST</b>	<b>\$3,987,930</b>
<b>DEMOLITION AND N WALL REPAIR</b>	
General Contractor Direct Costs	\$1,343,836
General Conditions and Mobilization (25%)	\$335,959
Subtotal	\$1,679,795
Contingency at 15%	\$251,969
<b>SUBTOTAL DIRECT COST</b>	<b>\$1,931,764</b>
<b>TOTAL BUILDING DIRECT CONSTRUCTION COSTS</b>	<b>\$8,573,481</b>
Estimated cost per square foot	\$58
Estimating Contingency	15%
Sales Tax	8.90%
Soft Costs (design, permitting, admin)	30%
<b>TOTAL ESTIMATED PROJECT COSTS</b>	<b>\$13,194,644</b>



Seattle Parks and Recreation  
Magnuson Park: Building 2  
Jurisdictional Upgrades

Justification	South Wing	Area	18,020	Quantity	Unit	Cost	Subtotals	Division Totals	Phase I Costs	Phase II Costs	Comments
Repair	Allowance for storm drain repairs			1	ls	\$0,000.00	\$50,000				Investigative work req'd to determine scope Assumes 25% replacement of existing deck
Repair	Roof deck repair		12,500	sf	20.00	\$20.00	\$250,000				
Repair	Painting		27,030.00	sf	0.75		\$20,273				
	Glazing repairs										Seals, gaskets and replacement of broken glass Seals, gaskets and replacement of broken glass Seals, gaskets and replacement of broken glass
Repair	South elevation		2,210	sf	24.00		\$53,040				
Repair	West elevation		1,872	sf	24.00		\$44,928				
Repair	East elevation		1,872	sf	24.00		\$44,928				
Repair	Electrical service upgrade		18,020	sf	2.50		\$45,050	\$508,219			
	Outside air louvers		400	sf	60.00		\$24,000				assume 400 sf - building has non-operable windows
TI	Toilet room exhaust		1	ea	20,000.00		\$20,000				
TI	Minimal power for TI work		18,020	sf	0.75		\$13,515				
TI	Hot water boiler and flue		1	ea	25,000.00		\$25,000				
TI	Ducting		18,020	sf	6.00		\$108,120				Investigative req'd to determine scope
TI	Fan coil units (interior spaces)		8	ea	6,000		\$48,000	\$238,635			
	Allowance for regulated materials removal		27,030	sf	2.00		\$54,060	\$54,060			
L and I	ADA restroom modifications		1,280	sf	30.00		\$38,400				
ADA	Replace and add plumbing fixtures		10	ea	3,000.00		\$30,000				Assumes existing waste piping can be reused May be able to mitigate with City/area served is small
ADA	Elevator		1	ea	150,000.00		\$150,000				
ADA	ADA signage		1	ls	1,000.00		\$1,000	\$219,400			
Egress	Replace exterior doors/frames/hardware		10	ea	3,000.00		\$30,000	\$30,000			
	Replace lighting fixtures to meet energy code		18,020	sf	2.00		\$36,040				\$419,868
Energy	Thermal separation wall between hanger		5,712	sf	14.00		\$79,968				
Energy	Thermal furring at exterior wall		4,014	sf	14.00		\$56,196				
Energy	Replace roof/R-30 insulation		15,479	sf	16.00		\$247,664				
	Roof diaphragm plywood		15,479	sf	2.00		\$30,958				\$132,958
Seismic	Internal N-S bracing		2	ea	10,000.00		\$20,000				
Seismic	Footing modifications at braces		2	ea	10,000.00		\$20,000				
Seismic	Internal mezzanine bracing		2	ea	8,000.00		\$16,000				
	Footing modifications at braces		2	ea	8,000.00		\$16,000				\$132,958
Seismic	Unreinforced brick or hollow clay tile		750	sf	20.00		\$15,000				
Seismic	Cutting and patching for structural		1	ls	15,000.00		\$15,000				
	fire extinguishers		6	ea	300.00		\$1,800				
Life/safety	Demo existing suspended ceilings		13,515	sf	1.25		\$16,894				\$242,973
Life/safety	Fire sprinklers		18,020	sf	6.00		\$108,120				
Life/safety	Trenching and vault for fire alarm sprinklers		1	ls	60,000.00		\$60,000				
Life/safety	Power for fire alarm compressors		1	ls	3,000.00		\$3,000				
Life/safety	Add egress lig to meet life safety code		18,020	sf	0.20		\$3,604				\$1,846,112
Life/safety	Fire Alarm		18,020	sf	2.75		\$49,555				
Raw Total Cost								\$1,846,112			
Raw Cost/sf								\$102			

Seattle Parks and Recreation  
Magnuson Park: Building 2  
Jurisdictional Upgrades

Justification	South Hanger Area	35,141	Quantity	Unit	Cost	Subtotals	Division Totals	Phase I Costs	Phase II Costs	Comments
Repair	Allowance for storm drain repairs	0	Is	\$0,000.00	\$0					
Repair	Roof deck repair	12,500	sf	20.00	\$250,000					
Repair	Painting	42,169.20	sf	0.75	\$31,627					
	Replace/repair clerestory glazing	0								
Repair	South elevation	2,956	sf	24.00	\$70,944					
Repair	North elevation	2,956	sf	24.00	\$70,944					
	Repair glazing on hanger doors									
	West elevation	5,120	sf	24.00	\$122,880					
	East elevation	5,120	sf	24.00	\$122,880					
Repair	Replace roof (no insulation)	35,141	sf	12.00	\$421,692					
Repair	Electrical service upgrade	35,141	sf	2.00	\$70,282		\$1,161,249			
TI	Minimal power for TI work	35,141	sf	0.25	\$8,785		\$8,785			
L and I	Allowance for regulated materials removal	42,169.20	sf	2.00	\$84,338		\$84,338			Investigative req'd to determine scope
Egress	Replace exterior doors/frames/hardware	8	ea	3,500.00	\$28,000		\$28,000			
Seismic	Roof diaphragm plywood	35,141	sf	2.00	\$70,282		\$70,282			
Seismic	Vertical bracing at hanger doors	24	ea	2,500.00	\$60,000		\$60,000			
Seismic	Braces and connections	6	ea	96,000.00	\$576,000		\$576,000			
Seismic	New Columns	2	ea	40,000.00	\$80,000		\$80,000			
Seismic	New footings	2	ea	10,000.00	\$20,000		\$20,000			
Seismic	Vertical side bracing	36	ea	2,000.00	\$72,000		\$72,000			
	Braces and connections	8	ea	4,000.00	\$32,000		\$32,000			
	New Columns	48	ea	1,500.00	\$72,000		\$72,000			
Seismic	New connections	750	sf	20.00	\$15,000		\$15,000			
Seismic	Unreinforced brick or hollow clay tile	1	Is	15,000.00	\$15,000		\$1,012,282			
	Cutting and patching for structural									
Life/safety	fire extinguishers	6	ea	300.00	\$1,800		\$1,800			
Life/safety	Fire sprinklers	35,141	sf	4.50	\$158,135		\$158,135			
Life/safety	Dry valves	8	ea	1,500.00	\$12,000		\$12,000			
Life/safety	Power for fire alarm compressors	1	Is	3,000.00	\$3,000		\$3,000			
Life/safety	Add egress lig to meet life safety code	35,141	sf	0.20	\$7,028		\$7,028			
Life/safety	Fire Alarm	35,141	sf	4.00	\$140,564		\$322,527			
Raw Total Cost							\$2,617,181			
Raw Cost/sf							\$74			

Seattle Parks and Recreation  
Magnuson Park

Jurisdictional Upgrades

Justification Area	North Hanger Area	Quantity	Unit	Cost	Subtotals	Division Totals	Phase I Costs	Phase II Costs	Comments
Repair	16,000								
Repair		4,000	sf	20.00	\$80,000				
Repair		19,200.00	sf	0.75	\$14,400				
		0							Assumes 25% replacement of existing deck
Repair		1,536	sf	20.00	\$30,720				
Repair		1,536	sf	20.00	\$30,720				
Repair		1,632	sf	24.00	\$39,168				
Repair		16,000	sf	12.00	\$192,000				
Repair		16,000	sf	2.50	\$40,000	\$427,008			
TI		35,141	sf	0.25	\$8,785	\$8,785			
L and I		42,169.20	sf	2.00	\$84,338	\$84,338			Investigative req'd to determine scope
Egress		8	ea	3,500.00	\$28,000	\$28,000			
Seismic		16,000	sf	2.00	\$32,000				
Seismic		24	ea	2,500.00	\$60,000				
		6	ea	96,000.00	\$576,000				
		2	ea	40,000.00	\$80,000				
		2	ea	10,000.00	\$20,000				
		36	ea	2,000.00	\$72,000				
		8	ea	4,000.00	\$32,000				
Seismic		48	ea	1,500.00	\$72,000				
Seismic		750	sf	20.00	\$15,000				
Seismic		1	ls	15,000.00	\$15,000	\$974,000			
Life/safety		6	ea	300.00	\$1,800				
Life/safety		16,000	sf	4.50	\$72,000				
Life/safety		6	ea	1,500.00	\$9,000				
Life/safety		1	ls	3,000.00	\$3,000				
Life/safety		16,000	sf	0.20	\$3,200				
Life/safety		16,000	sf	4.00	\$64,000	\$153,000			
Raw Total Cost						\$1,675,132			
Raw Cost/sf						\$105			





[illegible]